

Total Petrochemicals Monitors Condition of Steam Cracker Boiler Using Emerson's Smart Wireless Technology

BENEFITS

- Improved availability through better understanding of boiler condition
- Saved cost of installing around 1km of new wiring
- Increased safety due to reduction of movement of personnel into and around at-risk areas

CHALLENGE

Total Petrochemicals, part of the TOTAL group, and the fifth largest petrochemical company in the world wanted to introduce a number of new temperature measurement points at its plant in Carling Saint Avold, France to help them better understand the condition of a steam cracker boiler and anticipate when it might need to be replaced. By measuring the internal and external temperature of the boiler walls and identifying heat loss, it is possible to calculate the material's resistance, infer its' thickness and calculate changes over time.

The rising cost of copper and aging existing wiring (corrosion, infiltration, armature degradation etc.) meant finding an alternative method to carry data throughout the plant was becoming essential.

This non critical monitoring of the boiler walls presented an opportunity to evaluate Emerson's Smart Wireless technology on a large scale and in a real industrial environment. The application would also enable the company to determine the current limits of the wireless devices.

SOLUTION

The introduction of Smart Wireless temperature transmitters provides the additional temperature measurement data required to calculate changes in wall thickness of the boiler. Eight Rosemount® 648 wireless temperature transmitters were installed directly onto the exterior of a boiler drum situated fifty meters above the ground. An Emerson Smart Wireless Gateway was positioned on the roof of a technical building around 300m from the devices. Two additional temperature gauges were installed in strategic areas between the boiler and the gateway to provide sufficient coverage to the area and to enable supplementary measuring points to be added in the future as required. Data from the wireless transmitters is passed from the gateway to a third party DCS system via Modbus.



“Finding alternative methods to carry data throughout the plant is becoming essential. We believe in wireless technologies and Emerson is a pioneer that is on the right track to offer a solution that meets our needs.”

Jerome Uszes
Electricity Control & Regulation Maintenance
Manager, Total Petrochemicals

RESULTS

From the control room, the operators have gained visibility of the thermal status of the boiler walls allowing them to determine how the internal (process) and external (climatic) conditions impact on the material's deterioration.

By installing a wireless solution to connect the additional measurement points, Total Petrochemicals removed the need to install around 1km of new wiring. An additional benefit of the solution has been the reduction of movement of personnel into and around the at-risk areas.

“We were very pleased with Emerson’s responsiveness with regards to fulfilment times. Delivery, installation and a successful set up was completed within just ten days of our order.”

Jean-Michel Glad

Control & Regulation Reliability Engineer,
Total Petrochemicals

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